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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/800,215 | 03/06/2001 | Yu-Chiang Cheng | 8688.222US01 | 4982 |

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EXAMINER

VU, QUYNH NHU H

| ART UNIT | PAPER NUMBER |
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2841

DATE MAILED: 12/06/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/800,215

Applicant(s)

CHENG, YU-CHIANG

Examiner

Quynh-Nhu H. Vu

Art Unit

2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: ____

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-13 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of copending Application No. 09/799,900; 09/800,408; 09/800,409 and over claims 1-8 of Application No. 09/800,412. Although the conflicting claims are not identical, they are not patentably distinct from each other because: claims 1-13 in current application contains the same basis elements as claims 1-13 of said copending application; but they are interspersed in different places.

a) Copending Application No. 09/801,412.

Regarding claim 1, copending Application No. 09/801,412 teaches all claimed subject matter. However, Application No. '412 fails to teach a ground layer GND2 located between a second and third insulating substrate. In other words, there are more ground layers in claim invention of current application No. 09/800215 than the application No. '412. However, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to add more ground layer in order to eliminate

or reduce cross talk between the circuit. Furthermore, application No. '412 does not to teach exactly thickness range of the first, second, third, fourth, fifth, sixth and seventh insulating layers. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to change the thickness range of the insulating layers in order to have more room for error and change in the design of the circuit board, and to increase or decrease rigidity. In addition, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. See *in re Aller*, 105 USPQ 233.

Regarding claim 2, Application No. '412 claims that at least one of the first, third, fifth and seventh insulating substrate is made from a polyester prepreg, which is claimed in the claim invention.

Regarding claim 3, Application No. '412 claims that at least one of the second, fourth and sixth insulating substrate is made from a fibrous core material, which is claimed in the claim invention.

Regarding claim 4, Application No. '412 claims that the core material contains paper fibers, which is claimed in the claim invention.

Regarding claim 5, Application No. '412 claims that the core material contains glass fibers, which is claimed in the claim invention.

Regarding claim 6, Application No. '412 claims that thickness of the first and seventh insulating substrate are equal, which is claimed in the claim invention.

Regarding claim 7, Application No. '412 claims that thickness of the second and sixth insulating substrate are equal, which is claimed in the claim invention.

Regarding claim 8, Application No. '412 claims that thickness of the third and fifth insulating substrate are equal, which is claimed in the claim invention.

Regarding claim 9, Application No. '412 claims that each of the first and fifth signal wiring layers has a thickness of about 1.4 mil; and each of the said second, third

and fourth signal wiring layers, said first and second ground wiring layers and the power wiring layer has a thickness of about 0.7 mil. It is noted that the fifth signal wiring layers of Application No. '412 is same as fourth signal wiring layers of claim invention.

Regarding claims 10-13, Application No. '412 claim does not to teach exactly thickness range of the first, second, third, fourth, fifth, sixth and seventh insulating layers. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to change the thickness range of the insulating layers in order to have more room for error and change in the design of the circuit board, and to increase or decrease rigidity. In addition, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. See in re Aller, 105 USPQ 233.

b) Copending Application No. 09/799,900; 09/800,408; 09/800,409.

Regarding claim 1, copending Application No. '900; '408 and '409 teaches all claimed subject matter. However, Application No. '900; '408 and '409 fails to teach a ground layer GND2 located between a second and third insulating substrate; a third ground layer GND3 located between a fifth and sixth insulating substrate. In other words, there are more ground layers in claim invention of current application No. 09/800215 than the application No. '900; '408 and '409. However, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to add more ground layer in order to eliminate or reduce cross talk between the circuit. Furthermore, application No. '900; '408 and '409 does not to teach exactly thickness range of the first, second, third, fourth, fifth, sixth and seventh insulating layers. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to change the thickness range of the insulating layers in order to have more room for error and change in the design of the circuit board, and to increase or decrease

rigidity. In addition, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. See *in re Aller*, 105 USPQ 233.

Regarding claims 2-3, Application No. '900; '408 and '409 fails to teach the seventh insulating substrate made from a polyester pregreg; sixth insulating substrate made from a fibrous core material. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to employ the seventh insulating substrate made of a polyester pregreg, since it has been to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended uses as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding claim 4, Application No. '900; '408 and '409 claims that the core material contains paper fibers, which is claimed in the claim invention.

Regarding claim 5, Application No. '900; '408 and '409 claims that the core material contains glass fibers, which is claimed in the claim invention.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Steigerwald et al. [US 5,912,809] disclose in Fig. 7 a structure of multi-layer circuit board is similarly to the claim invention. Steigerwald et al. does not disclose the thickness range of the insulating substrates.

Sisler [US 5,010,641] disclose in Fig. 1 a structure of multi-layer circuit board is similarly to the claim invention. Sisler disclose the thickness between the power layer and ground layer is not in the range of the claim invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quynh-Nhu H. Vu whose telephone number is 703-305-0850. The examiner can normally be reached on 7:30-5:00 (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on 703-308-3301. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7724 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

QNV
November 27, 2001

Albert W. Paladini 11-30-01
ALBERT W. PALADINI
PRIMARY EXAMINER